

Listing of Claims

1 – 15 Cancelled.

16. An apparatus comprising:

- 5 a storage medium; and
 a plurality of instructions stored in the storage medium, with the instructions
 designed to perform a selected one of intracoding of a macroblock of video data and
 decoding of an intracoded macroblock of video data, where an intracoded
 macroblock includes a MxN subblock of pixel values predicted under a first
 10 prediction mode as follows:
 where $t_0 - t_N$ and $l_0 - l_M$ are available,

$$p_{ij} = (t_0 + \dots + t_N + l_0 + \dots + l_M + N/2 + M/2) / (M + N);$$

 Else if only $t_0 - t_N$ are available,

15 $p_{ij} = (t_0 + \dots + t_N + N/2) / N;$

 Else if only $l_0 - l_M$ are available,

$p_{ij} = (l_0 + \dots + l_M + M/2) / M;$

 Else

$p_{ij} = 128;$

20 for $i = 0 - (N-1), j = 0 - (M-1);$

 where p_{ij} are pixel values of the MxN subblock, with i and j being indices
 denoting row and columns positions within the MxN subblock;

$t_0 - t_N$ are pixel values of adjacent subblocks above the MxN subblock;

 and

25 $l_0 - l_m$ are pixel values of adjacent subblocks to the left of the MxN
 subblock.

17. The apparatus of claim 16, wherein the instructions are further designed to

- perform the selected one of intracoding of a macroblock and decoding of an
 30 intracoded macroblock where an intracoded macroblock includes a MxN

subblock of pixel values predicted under a second prediction mode, where a column of pixel values is predicted as follows:

where $t_0 - t_N$ are available, $P_{ij} = t_j$.

- 5 18. The apparatus of claim 16, wherein the instructions are further designed to perform the selected one of intracoding of a macroblock and decoding of an intracoded macroblock where an intracoded macroblock includes a $M \times N$ subblock of pixel values predicted under a second prediction mode, where a row of pixel values is predicted as follows
- 10 where $l_0 - l_N$ are available, $P_{ij} = l_i$.

19. The apparatus of claim 16, wherein the instructions are further designed to perform the selected one of intracoding of a macroblock and decoding of an intracoded macroblock where an intracoded macroblock includes at least a selected one of a 4×8 subblock, a 8×4 subblock and a 8×8 subblock of pixel values predicted
- 15 under a second prediction mode, where a diagonal of pixel values is predicted in accordance with a selected of:

4x8 subblock	8x4 subblock	8x8 subblock	predicted by
-	P_{07}	P_{07}	$(t_5 + t_6 \ll 1 + t_7 + 2) \gg 2$
-	P_{06}, P_{17}	P_{06}, P_{17}	$(t_4 + t_5 \ll 1 + t_6 + 2) \gg 2$
-	P_{05}, P_{16}, P_{27}	P_{05}, P_{16}, P_{27}	$(t_3 + t_4 \ll 1 + t_5 + 2) \gg 2$
-	$P_{04}, P_{15}, P_{26}, P_{37}$	$P_{04}, P_{15}, P_{26}, P_{37}$	$(t_2 + t_3 \ll 1 + t_4 + 2) \gg 2$
P_{03}	$P_{03}, P_{14}, P_{25}, P_{36}$	$P_{03}, P_{14}, P_{25}, P_{36}, P_{47}$	$(t_1 + t_2 \ll 1 + t_3 + 2) \gg 2$
P_{02}, P_{13}	$P_{02}, P_{13}, P_{24}, P_{35}$	$P_{02}, P_{13}, P_{24}, P_{35}, P_{46}, P_{57}$	$(t_0 + t_1 \ll 1 + t_2 + 2) \gg 2$
P_{01}, P_{12}, P_{23}	$P_{01}, P_{12}, P_{23}, P_{34}$	$P_{01}, P_{12}, P_{23}, P_{34}, P_{45}, P_{56}, P_{67}$	$(q + t_0 \ll 1 + t_1 + 2) \gg 2$
$P_{00}, P_{11}, P_{22}, P_{33}$	$P_{00}, P_{11}, P_{22}, P_{33}$	$P_{00}, P_{11}, P_{22}, P_{33}, P_{44}, P_{55}, P_{66}, P_{77}$	$(l_0 + q \ll 1 + t_0 + 2) \gg 2$
$P_{10}, P_{21}, P_{32}, P_{43}$	P_{10}, P_{21}, P_{32}	$P_{10}, P_{21}, P_{32}, P_{43}, P_{54}, P_{65}, P_{76}$	$(l_1 + l_0 \ll 1 + q + 2) \gg 2$

P20, P31, P42, P53	P20, P31	P20, P31, P42, P53, P64, P75	$(l_2 + l_1 \ll 1 + l_0 + 2) \gg 2$
P30, P41, P52, P63	P30	P30, P41, P52, P63, P74	$(l_3 + l_2 \ll 1 + l_1 + 2) \gg 2$
P40, P51, P62, P73	-	P40, P51, P62, P73	$(l_4 + l_3 \ll 1 + l_2 + 2) \gg 2$
P50, P61, P72	-	P50, P61, P72	$(l_5 + l_4 \ll 1 + l_3 + 2) \gg 2$
P60, P71	-	P60, P71	$(l_6 + l_5 \ll 1 + l_4 + 2) \gg 2$
P70	-	P70	$(l_7 + l_6 \ll 1 + l_5 + 2) \gg 2$

20. The apparatus of claim 16, wherein the instructions are further designed to perform the selected one of intracoding of a macroblock and decoding of an intracoded macroblock where an intracoded macroblock includes at least a selected one of a 4x8 subblock, a 8x4 subblock and a 8x8 subblock of pixel values predicted under a second prediction mode, where a diagonal of pixel values is predicted in accordance with a selected one of:

4x8 subblock	8x4 subblock	8x8 subblock	predicted by
P00	P00	P00	$(t_2 + t_1 \ll 1 + t_0 + 2) \gg 2$
P01, P10	P01, P10	P01, P10	$(t_3 + t_2 \ll 1 + t_1 + 2) \gg 2$
P02, P11, P20	P02, P11, P20	P02, P11, P20	$(t_4 + t_3 \ll 1 + t_2 + 2) \gg 2$
P03, P12, P21, P30	P03, P12, P21, P30	P03, P12, P21, P30	$(t_5 + t_4 \ll 1 + t_3 + 2) \gg 2$
P13, P22, P31, P40	P04, P13, P22, P31	P04, P13, P22, P31, P40	$(t_6 + t_5 \ll 1 + t_4 + 2) \gg 2$
P23, P32, P41, P50	P05, P14, P23, P32	P05, P14, P23, P32, P41, P50	$(t_7 + t_6 \ll 1 + t_5 + 2) \gg 2$
P33, P42, P51, P60	P06, P15, P24, P33	P06, P15, P24, P33, P42, P51, P60	$(t_8 + t_7 \ll 1 + t_6 + 2) \gg 2$
P43, P52, P61, P70	P07, P16, P25, P34	P07, P16, P25, P34, P43, P52, P61, P70	$(t_9 + t_8 \ll 1 + t_7 + 2) \gg 2$
P53, P62, P71	P17, P26, P35	P17, P26, P35, P44, P53, P62, P71	$(t_{10} + t_9 \ll 1 + t_8 + 2) \gg 2$
P63, P72	P27, P36	P27, P36, P45, P54, P63, P72	$(t_{11} + t_{10} \ll 1 + t_9 + 2) \gg 2$
P73	P37	P37, P46, P55, P64, P73	$(t_{12} + t_{11} \ll 1 + t_{10} + 2) \gg 2$
-	-	P47, P56, P65, P74	$(t_{13} + t_{12} \ll 1 + t_{11} + 2) \gg 2$
-	-	P57, P66, P75	$(t_{14} + t_{13} \ll 1 + t_{12} + 2) \gg 2$
-	-	P67, P76	$(t_{15} + t_{14} \ll 1 + t_{13} + 2) \gg 2$
-	-	P77	$(t_{15} + t_{15} \ll 1 + t_{14} + 2) \gg 2$

21. The apparatus of claim 16, wherein the instructions are further designed to perform the selected one of intracoding of a macroblock and decoding of an intracoded macroblock where an intracoded macroblock includes at least a selected one of a 4x8 subblock, a 8x4 subblock and a 8x8 subblock of pixel values predicted under a second prediction mode, where a diagonal of pixel values is predicted in accordance with a selected one of:

4x8 subblock	8x4 subblock	8x8 subblock	predicted by
-	p ₀₇	p ₀₇	$(t_6 + t_7 + 1) \gg 1$
-	p ₁₇	p ₁₇	$(t_5 + t_6 \ll 1 + t_7 + 2) \gg 2$
-	p ₀₆ , p ₂₇	p ₀₆ , p ₂₇	$(t_5 + t_6 + 1) \gg 1$
-	p ₁₆ , p ₃₇	p ₁₆ , p ₃₇	$(t_4 + t_5 \ll 1 + t_6 + 2) \gg 2$
-	p ₀₅ , p ₂₆	p ₀₅ , p ₂₆ , p ₄₇	$(t_4 + t_5 + 1) \gg 1$
-	p ₁₅ , p ₃₆	p ₁₅ , p ₃₆ , p ₅₇	$(t_3 + t_4 \ll 1 + t_5 + 2) \gg 2$
-	p ₀₄ , p ₂₅	p ₀₄ , p ₂₅ , p ₄₆ , p ₆₇	$(t_3 + t_4 + 1) \gg 1$
-	p ₁₄ , p ₃₅	p ₁₄ , p ₃₅ , p ₅₆ , p ₇₇	$(t_2 + t_3 \ll 1 + t_4 + 2) \gg 2$
p ₀₃	p ₀₃ , p ₂₄	p ₀₃ , p ₂₄ , p ₄₅ , p ₆₆	$(t_2 + t_3 + 1) \gg 1$
p ₁₃	p ₁₃ , p ₃₄	p ₁₃ , p ₃₄ , p ₅₅ , p ₇₆	$(t_1 + t_2 \ll 1 + t_3 + 2) \gg 2$
p ₀₂ , p ₂₃	p ₀₂ , p ₂₃	p ₀₂ , p ₂₃ , p ₄₄ , p ₆₅	$(t_1 + t_2 + 1) \gg 1$
p ₁₂ , p ₃₃	p ₁₂ , p ₃₃	p ₁₂ , p ₃₃ , p ₅₄ , p ₇₅	$(t_0 + t_1 \ll 1 + t_2 + 2) \gg 2$
p ₀₁ , p ₂₂ , p ₄₃	p ₀₁ , p ₂₂	p ₀₁ , p ₂₂ , p ₄₃ , p ₆₄	$(t_0 + t_1 + 1) \gg 1$
p ₁₁ , p ₃₂ , p ₅₃	p ₁₁ , p ₃₂	p ₁₁ , p ₃₂ , p ₅₃ , p ₇₄	$(q + t_0 \ll 1 + t_1 + 2) \gg 2$
p ₀₀ , p ₂₁ , p ₄₂ , p ₆₃	p ₀₀ , p ₂₁	p ₀₀ , p ₂₁ , p ₄₂ , p ₆₃	$(q + t_0 + 1) \gg 1$
p ₁₀ , p ₃₁ , p ₅₂ , p ₇₃	p ₁₀ , p ₃₁	p ₁₀ , p ₃₁ , p ₅₂ , p ₇₃	$(l_0 + q \ll 1 + t_0 + 2) \gg 2$
p ₂₀ , p ₄₁ , p ₆₂	p ₂₀	p ₂₀ , p ₄₁ , p ₆₂	$(l_1 + l_0 \ll 1 + q + 2) \gg 2$
p ₃₀ , p ₅₁ , p ₇₂	p ₃₀	p ₃₀ , p ₅₁ , p ₇₂	$(l_2 + l_1 \ll 1 + l_0 + 2) \gg 2$
p ₄₀ , p ₆₁	-	p ₄₀ , p ₆₁	$(l_3 + l_2 \ll 1 + l_1 + 2) \gg 2$

p ₅₀ , p ₇₁	-	p ₅₀ , p ₇₁	$(l_4 + l_3 \ll 1 + l_2 + 2) \gg 2$
p ₆₀	-	p ₆₀	$(l_5 + l_4 \ll 1 + l_3 + 2) \gg 2$
p ₇₀	-	p ₇₀	$(l_6 + l_5 \ll 1 + l_4 + 2) \gg 2$

22. The apparatus of claim 16, wherein the instructions are further designed to perform the selected one of intracoding of a macroblock and decoding of an intracoded macroblock where an intracoded macroblock includes at least a selected one of a 4x8 subblock, a 8x4 subblock and a 8x8 subbblock of pixel values predicted under a second prediction mode, where a diagonal of pixel values is predicted in accordance with a selected one of:

4x8 subblock	8x4 subblock	8x8 subblock	predicted by
p ₀₀	p ₀₀	p ₀₀	$(t_0 + t_1 + 1) \gg 1$
p ₁₀	p ₁₀	p ₁₀	$(t_0 + t_1 \ll 1 + t_2 + 2) \gg 2$
p ₀₁ , p ₂₀	p ₀₁ , p ₂₀	p ₀₁ , p ₂₀	$(t_1 + t_2 + 1) \gg 1$
p ₁₁ , p ₃₀	p ₁₁ , p ₃₀	p ₁₁ , p ₃₀	$(t_1 + t_2 \ll 1 + t_3 + 2) \gg 2$
p ₀₂ , p ₂₁ , p ₄₀	p ₀₂ , p ₂₁	p ₀₂ , p ₂₁ , p ₄₀	$(t_2 + t_3 + 1) \gg 1$
p ₁₂ , p ₃₁ , p ₅₀	p ₁₂ , p ₃₁	p ₁₂ , p ₃₁ , p ₅₀	$(t_2 + t_3 \ll 1 + t_4 + 2) \gg 2$
p ₀₃ , p ₂₂ , p ₄₁ , p ₆₀	p ₀₃ , p ₂₂	p ₀₃ , p ₂₂ , p ₄₁ , p ₆₀	$(t_3 + t_4 + 1) \gg 1$
p ₁₃ , p ₃₂ , p ₅₁ , p ₇₀	p ₁₃ , p ₃₂	p ₁₃ , p ₃₂ , p ₅₁ , p ₇₀	$(t_3 + t_4 \ll 1 + t_5 + 2) \gg 2$
p ₂₃ , p ₄₂ , p ₆₁	p ₀₄ , p ₂₃	p ₀₄ , p ₂₃ , p ₄₂ , p ₆₁	$(t_4 + t_5 + 1) \gg 1$
p ₃₃ , p ₅₂ , p ₇₁	p ₁₄ , p ₃₃	p ₁₄ , p ₃₃ , p ₅₂ , p ₇₁	$(t_4 + t_5 \ll 1 + t_6 + 2) \gg 2$
p ₄₃ , p ₆₂	p ₀₅ , p ₂₄	p ₀₅ , p ₂₄ , p ₄₃ , p ₆₂	$(t_5 + t_6 + 1) \gg 1$
p ₅₃ , p ₇₂	p ₁₅ , p ₃₄	p ₁₅ , p ₃₄ , p ₅₃ , p ₇₂	$(t_5 + t_6 \ll 1 + t_7 + 2) \gg 2$
p ₆₃	p ₀₆ , p ₂₅	p ₀₆ , p ₂₅ , p ₄₄ , p ₆₃	$(t_6 + t_7 + 1) \gg 1$
p ₇₃	p ₁₆ , p ₃₅	p ₁₆ , p ₃₅ , p ₅₄ , p ₇₃	$(t_6 + t_7 \ll 1 + t_8 + 2) \gg 2$
-	p ₀₇ , p ₂₆	p ₀₇ , p ₂₆ , p ₄₅ , p ₆₄	$(t_7 + t_8 + 1) \gg 1$
-	p ₁₇ , p ₃₆	p ₁₇ , p ₃₆ , p ₅₅ , p ₇₄	$(t_7 + t_8 \ll 1 + t_9 + 2) \gg 2$
-	p ₂₇	p ₂₇ , p ₄₆ , p ₆₅	$(t_8 + t_9 + 1) \gg 1$

-	P ₃₇	P ₃₇ , P ₅₆ , P ₇₅	$(t_8 + t_9 \ll 1 + t_{10} + 2) \gg 2$
-	-	P ₄₇ , P ₆₆	$(t_9 + t_{10} + 1) \gg 1$
-	-	P ₅₇ , P ₇₆	$(t_9 + t_{10} \ll 1 + t_{11} + 2) \gg 2$
-	-	P ₆₇	$(t_{10} + t_{11} + 1) \gg 1$
-	-	P ₇₇	$(t_{10} + t_{11} \ll 1 + t_{12} + 2) \gg 2$

23. The apparatus of claim 16, wherein the instructions are further designed to perform the selected one of intracoding of a macroblock and decoding of an intracoded macroblock where an intracoded macroblock includes at least a selected one of a 4x8 subblock, a 8x4 subblock and a 8x8 subbblock of pixel values predicted under a second prediction mode, where a diagonal of pixel values is predicted in accordance with a selected one of:

4x8 subblock	8x4 subblock	8x8 subblock	predicted by
P ₀₀	P ₀₀	P ₀₀	$(l_0 + l_1 + 1) \gg 1$
P ₀₁	P ₀₁	P ₀₁	$(l_0 + l_1 \ll 1 + l_2 + 2) \gg 2$
P ₁₀ , P ₀₂	P ₁₀ , P ₀₂	P ₁₀ , P ₀₂	$(l_1 + l_2 + 1) \gg 1$
P ₁₁ , P ₀₃	P ₁₁ , P ₀₃	P ₁₁ , P ₀₃	$(l_1 + l_2 \ll 1 + l_3 + 2) \gg 2$
P ₂₀ , P ₁₂	P ₂₀ , P ₁₂ , P ₀₄	P ₂₀ , P ₁₂ , P ₀₄	$(l_2 + l_3 + 1) \gg 1$
P ₂₁ , P ₁₃	P ₂₁ , P ₁₃ , P ₀₅	P ₂₁ , P ₁₃ , P ₀₅	$(l_2 + l_3 \ll 1 + l_4 + 2) \gg 2$
P ₃₀ , P ₂₂	P ₃₀ , P ₂₂ , P ₁₄ , P ₀₆	P ₃₀ , P ₂₂ , P ₁₄ , P ₀₆	$(l_3 + l_4 + 1) \gg 1$
P ₃₁ , P ₂₃	P ₃₁ , P ₂₃ , P ₁₅ , P ₀₇	P ₃₁ , P ₂₃ , P ₁₅ , P ₀₇	$(l_3 + l_4 \ll 1 + l_5 + 2) \gg 2$
P ₄₀ , P ₃₂	P ₃₂ , P ₂₄ , P ₁₆	P ₄₀ , P ₃₂ , P ₂₄ , P ₁₆	$(l_4 + l_5 + 1) \gg 1$
P ₄₁ , P ₃₃	P ₃₃ , P ₂₅ , P ₁₇	P ₄₁ , P ₃₃ , P ₂₅ , P ₁₇	$(l_4 + l_5 \ll 1 + l_6 + 2) \gg 2$
P ₅₀ , P ₄₂	P ₃₄ , P ₂₆	P ₅₀ , P ₄₂ , P ₃₄ , P ₂₆	$(l_5 + l_6 + 1) \gg 1$
P ₅₁ , P ₄₃	P ₃₅ , P ₂₇	P ₅₁ , P ₄₃ , P ₃₅ , P ₂₇	$(l_5 + l_6 \ll 1 + l_7 + 2) \gg 2$
P ₆₀ , P ₅₂	P ₃₆	P ₆₀ , P ₅₂ , P ₄₄ , P ₃₆	$(l_6 + l_7 + 1) \gg 1$
P ₆₁ , P ₅₃	P ₃₇	P ₆₁ , P ₅₃ , P ₄₅ , P ₃₇	$(l_6 + l_7 \ll 1 + l_7 + 2) \gg 2$

P70, P71, P63, P72, P73	-	P70, P71, P72, P73, P74, P75, P76, P77, P62, P63, P64, P65, P66, P67, P54, P55, P56, P57, P46, P47	17
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24. The apparatus of claim 16, wherein the instructions are further designed to perform the selected one of intracoding of a macroblock and decoding of an intracoded macroblock where an intracoded macroblock includes at least a selected one of a 4x8 subblock, a 8x4 subblock and a 8x8 subblock of pixel values predicted under a second prediction mode, where a diagonal of pixel values is predicted in accordance with a selected one of:

4x8 subblock	8x4 subblock	8x8 subblock	predicted by
-	P07	P07	$(t_4 + t_5 < 1 + t_6 + 2) \gg 2$
-	P06	P06	$(t_3 + t_4 < 1 + t_5 + 2) \gg 2$
-	P05, P17	P05, P17	$(t_2 + t_3 < 1 + t_4 + 2) \gg 2$
-	P04, P16	P04, P16	$(t_1 + t_2 < 1 + t_3 + 2) \gg 2$
P03	P03, P15, P27	P03, P15, P27	$(t_0 + t_1 < 1 + t_2 + 2) \gg 2$
P02	P02, P14, P26	P02, P14, P26	$(q + t_0 < 1 + t_1 + 2) \gg 2$
P01, P13	P01, P13, P25, P37	P01, P13, P25, P37	$(l_0 + q < 1 + t_0 + 2) \gg 2$
P00, P12	P00, P12, P24, P36	P00, P12, P24, P36	$(q + l_0 + 1) \gg 1$
P10, P22	P10, P22, P34	P10, P22, P34, P46	$(l_0 + l_1 + 1) \gg 1$
P11, P23	P11, P23, P35	P11, P23, P35, P47	$(q + l_0 < 1 + l_1 + 2) \gg 2$
P20, P32	P20, P32	P20, P32, P44, P56	$(l_1 + l_2 + 1) \gg 1$
P21, P33	P21, P33	P21, P33, P45, P57	$(l_0 + l_1 < 1 + l_2 + 2) \gg 2$
P30, P42	P30	P30, P42, P54, P66	$(l_2 + l_3 + 1) \gg 1$
P31, P43	P31	P31, P43, P55,	$(l_1 + l_2 < 1 + l_3 + 2) \gg 2$

		P ₆₇	2
P ₄₀ , P ₅₂	-	P ₄₀ , P ₅₂ , P ₆₄ , P ₇₆	$(l_3 + l_4 + 1) \gg 1$
P ₄₁ , P ₅₃	-	P ₄₁ , P ₅₃ , P ₆₅ , P ₇₇	$(l_2 + l_3 \ll 1 + l_4 + 2) \gg 2$
P ₅₀ , P ₆₂	-	P ₅₀ , P ₆₂ , P ₇₄	$(l_4 + l_5 + 1) \gg 1$
P ₅₁ , P ₆₃	-	P ₅₁ , P ₆₃ , P ₇₅	$(l_3 + l_4 \ll 1 + l_5 + 2) \gg 2$
P ₆₀ , P ₇₂	-	P ₆₀ , P ₇₂	$(l_5 + l_6 + 1) \gg 1$
P ₆₁ , P ₇₃	-	P ₆₁ , P ₇₃	$(l_4 + l_5 \ll 1 + l_6 + 2) \gg 2$
P ₇₀	-	P ₇₀	$(l_6 + l_7 + 1) \gg 1$
P ₇₁	-	P ₇₁	$(l_5 + l_6 \ll 1 + l_7 + 2) \gg 2$

25. The apparatus of claim 16, wherein the apparatus further comprises a processor coupled to the storage medium to execute the instructions.
26. The apparatus of claim 16, wherein the apparatus comprises at least a selected one of an encoder and a decoder comprising the storage medium and the instructions.
27. The apparatus of claim 26, wherein the apparatus comprises a selected one of a palm sized computing device, a wireless mobile phone, a digital personal assistant, a laptop computing device, a desktop computing device, a set-top box, a server, a compact disk player, a digital versatile disk player, a television, and a display monitor.
28. The apparatus of claim 26, wherein the apparatus comprises a video daughter card and a motherboard having integrated video capability.
29. Cancelled.
30. An apparatus comprising:
a storage medium to store at least a macroblock of video data; and
logic coupled to the storage medium to perform a selected one of intracoding of a macroblock of video data and decoding of an intracoded macroblock of video

data, where an intracoded macroblock includes a MxN subblock of pixel values predicted under a first prediction mode as follows:

where $t_0 - t_N$ and $l_0 - l_M$ are available,

$$p_{ij} = (t_0 + \dots + t_N + l_0 + \dots + l_M + N/2 + M/2) / (M + N);$$

Else if only $t_0 - t_N$ are available,

$$p_{ij} = (t_0 + \dots + t_N + N/2) / N;$$

Else if only $l_0 - l_M$ are available,

$$p_{ij} = (l_0 + \dots + l_M + M/2) / M;$$

Else

$$p_{ij} = 128;$$

for $i = 0 - (N-1)$, $j = 0 - (M-1)$;

where p_{ij} are pixel values of the MxN subblock, with i and j being indices denoting row and columns positions within the MxN subblock;

$t_0 - t_N$ are pixel values of adjacent subblocks above the MxN subblock;

and

$l_0 - l_m$ are pixel values of adjacent subblocks to the left of the MxN subblock.